

# Circulation

An American Heart  
Association Journal

January 9, 2018  
Volume 137  
Number 2

## FRAME OF REFERENCE

### Editor's Page

#### Ischemic Stroke Mandates Cross-Disciplinary Collaboration

Marc Fisher, MD; Joseph A. Hill, MD, PhD

103

### On My Mind

#### Prevention of "Failure": Is It a Failure of Prevention?

Vijay Nambi, MD, PhD; Anita Deswal, MD, MPH; Christie M. Ballantyne, MD

106

## ORIGINAL RESEARCH ARTICLES

#### Potential US Population Impact of the 2017 ACC/AHA High Blood Pressure Guideline

Paul Muntner, PhD; Robert M. Carey, MD; Samuel Gidding, MD; Daniel W. Jones, MD; Sandra J. Taler, MD; Jackson T. Wright Jr, MD, PhD; Paul K. Whelton, MB, MD, MSc

109



#### Empagliflozin and Clinical Outcomes in Patients With Type 2 Diabetes Mellitus, Established Cardiovascular Disease, and Chronic Kidney Disease

Christoph Wanner, MD; John M. Lachin, ScD; Silvio E. Inzucchi, MD; David Fitchett, MD; Michaela Mattheus, Dipl Biomath; Jyothis George, MBBS, PhD, FRCP; Hans J. Woerle, MD; Uli C. Broedl, MD; Maximilian von Eynatten, MD; Bernard Zinman, MD; On behalf of the EMPA-REG OUTCOME Investigators

119

### Editorial

#### Sodium/Glucose Cotransporter 2 Inhibitors in Patients With Diabetes Mellitus and Chronic Kidney Disease: Turning the Page

Jorge Plutzky, MD; George Bakris, MD

130

#### Influence of Baseline Diastolic Blood Pressure on Effects of Intensive Compared With Standard Blood Pressure Control

Srinivasan Beddhu, MD; Glenn M. Chertow, MD; Alfred K. Cheung, MD; William C. Cushman, MD; Mahboob Rahman, MD; Tom Greene, PhD; Guo Wei, MS; Ruth C. Campbell, MD; Margaret Conroy, MD; Barry I. Freedman, MD; William Haley, MD; Edward Horwitz, MD; Dalane Kitzman, MD; James Lash, MD; Vasilios Papademetriou, MD; Roberto Pisoni, MD; Erik Riessen, MD; Clive Rosendorff, MD, PhD; Suzanne G. Watnick, MD; Jeffrey Whittle, MD; Paul K. Whelton, MB, MD, MSc; for the SPRINT Research Group

134

### Editorial

#### Benefits and Risks of Antihypertensive Treatment: How Far Can Diastolic Blood Pressure Be Lowered?

Alberto Zanchetti, MD; Costas Thomopoulos, MD

144

#### Exercise Intolerance in Heart Failure With Preserved Ejection Fraction: Diagnosing and Ranking Its Causes Using Personalized O<sub>2</sub> Pathway Analysis

Nicholas E. Houstis, MD, PhD; Aaron S. Eisman, BS; Paul P. Pappagianopoulos, MD; Luke Wooster, BA; Cole S. Bailey, BA; Peter D. Wagner, MD; Gregory D. Lewis, MD

148



PODCAST



CME



OPEN ACCESS



BRIDGING DISCIPLINES

#### On the Cover: *Circulation* Doodle

This month's doodle is in honor of Learn Your Name in Morse Code Day (January 11, 2018). The doodle displays "Circulation" written in Morse Code.

For more information about the doodle, go to <http://circ.ahajournals.org/content/circulation-cover-doodle>.

## ORIGINAL RESEARCH ARTICLES

### Editorial

- Can Oxygen Transport Analysis Tell Us Why People With Heart Failure With Preserved Ejection Fraction Feel So Poorly?** 162

*Barry A. Borlaug, MD*

- Extracellular Matrix Proteomics Reveals Interplay of Aggrecan and Aggrecanases in Vascular Remodeling of Stented Coronary Arteries** 166

*Gonca Suna, MD, PhD; Wojciech Wojakowski, MD; Marc Lynch, MSc; Javier Barallobre-Barreiro, PhD; Xiaoke Yin, PhD; Ursula Mayr, MD; Ferheen Baig, MSc; Ruifang Lu, PhD; Marika Fava, PhD; Robert Hayward, BSc; Chris Molenaar, PhD; Stephen J. White, PhD; Tomasz Roleder, MD; Krzysztof P. Milewski, MD; Pawel Gasior, MD; Piotr P. Buszman, MD; Pawel Buszman, MD; Marjan Jahangiri, MD; Catherine M. Shanahan, PhD; Jonathan Hill, MD; Manuel Mayr, MD, PhD*



## STATE OF THE ART

### In Depth

- Early Detection of Subclinical Myocardial Damage in Chronic Aortic Regurgitation and Strategies for Timely Treatment of Asymptomatic Patients** 184

*Joe K.T. Lee, MD; Anna Franzone, MD, PhD; Jonas Lanz, MD; George C.M. Siontis, MD, PhD; Stefan Stortecky, MD; Christoph Gräni, MD; Eva Roost, MD; Stephan Windecker, MD; Thomas Pilgrim, MD*

## THE PULSE

### Cardiology News

- High Costs and Caution Yield Slow Start for New Heart Drugs** 197

*Bridget M. Kuehn*

## CASES AND TRACES

### ECG Challenge

- Bayés Syndrome: What Is It?** 200

*Adrian Baranchuk, MD; Pelayo Torner, MD; Antoni Bayés de Luna, MD, PhD*

## CORRESPONDENCE

### Research Letter

- Accelerometer-Measured Physical Activity and Sedentary Behavior in Relation to All-Cause Mortality: The Women's Health Study** 203

*I-Min Lee, MBBS, ScD; Eric J. Shiroma, ScD; Kelly R. Evenson, MS, PhD; Masamitsu Kamada, PhD; Andrea Z. LaCroix, PhD; Julie E. Buring, ScD*

- Risks of Overinterpreting Interim Data: Lessons From the TOTAL Trial (Thrombectomy With PCI Versus PCI Alone in Patients With STEMI)** 206

*Sanjit S. Jolly, MD, MSc; Peggy Gao, MSc; John A. Cairns, MD; Salim Yusuf, MBBS, DPhil; Deepak L. Bhatt, MD, MPH; D. George Wyse, MD, PhD; George A. Wells, MSc, PhD; Vladimír Džavík, MD*

### Correspondence

- Letter by Chen and Shen Regarding Article, "Exosomal MicroRNA Transfer Into Macrophages Mediates Cellular Postconditioning"** 210

*Weiqian Chen, PhD; Zhenya Shen, MD*



PODCAST



CME



OPEN ACCESS



BRIDGING DISCIPLINES

## CORRESPONDENCE

---

- Response by Marbán and de Couto to Letter Regarding Article, “Exosomal MicroRNA Transfer Into Macrophages Mediates Cellular Postconditioning”** 212  
*Eduardo Marbán, MD, PhD; Geoffrey de Couto, PhD*
- Letter by Ianiro et al Regarding Article, “Effect of Long-Term Metformin and Lifestyle in the Diabetes Prevention Program and Its Outcome Study on Coronary Artery Calcium”** 213  
*Gianluca Ianiro, MD; Giovanni Cammarota, MD; Antonio Gasbarrini, MD*
- Letter by Jin-shan and Xue-bin Regarding Article, “Loss of Cardioprotective Effects at the ADAMTS7 Locus as a Result of Gene-Smoking Interactions”** 215  
*He Jin-shan, MD; Li Xue-bin, MD*



PODCAST



CME



OPEN ACCESS



BRIDGING DISCIPLINES

CIRCULATION (ISSN 0009-7322) is published weekly except June and December by Wolters Kluwer Health, Inc. at 14700 Citicorp Drive, Bldg 3, Hagerstown, MD 21742. Business offices are located at Two Commerce Square, 2001 Market Street, Philadelphia, PA 19103. Production offices are located at 351 West Camden Street, Baltimore, MD 21201-2436. Individuals may subscribe for their personal use at the following rates for print subscriptions: \$225 for AHA/ASA Domestic and International Members (excluding General Membership level), or \$693 for domestic non-members and \$1061 for international non-members. AHA membership information can be found online at [professional.heart.org](http://professional.heart.org). Periodicals postage paid at Hagerstown, MD, and additional mailing offices. POSTMASTER: Send address changes to CIRCULATION, American Heart Association, Wolters Kluwer Health, Inc., PO Box 1610, Hagerstown, MD 21740.

137 (2)

*Circulation*. 2018;137:103-216

*Circulation* is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231  
Copyright © 2018 American Heart Association, Inc. All rights reserved.  
Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the  
World Wide Web at:

<http://circ.ahajournals.org/content/137/2.citation>

**Permissions:** Requests for permissions to reproduce figures, tables, or portions of articles originally published in *Circulation* can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the [Permissions and Rights Question and Answer](#) document.

**Reprints:** Information about reprints can be found online at:  
<http://www.lww.com/reprints>

**Subscriptions:** Information about subscribing to *Circulation* is online at:  
<http://circ.ahajournals.org/subscriptions/>